

Docket No.: LEDGE-002
Inventor: David S. Goldberg

REMARKS

Claims 33 and 34 stand rejected under 35 USC 102(b) as being anticipated by Bolton et al., USPN 6,131,233.

Claims 33 and 34 are canceled. While claims 33 and 34 are canceled, the applicants respectfully add to the record that Bolton et al. does not disclose a mop head having cords formed by twisting (intertwining) at least two filaments together into a bundle to form the cords of the mop head. Bolton et al. discloses an elongate member in the form of a substantially rectangular flexible knitted or woven sheet which is connected (typically by stitching, sewing or the like) along its longitudinal edges to form a respective tubular member.

The applicant respectfully submits the term "cord" as used herein under its normal definition, which is defined by Merriam-Webster as a long slender flexible material usually consisting of several strands (as of thread or yarn) woven or twisted together. The tubular member of Bolton et al. is a flat sheet of knitted or woven textile material made from microfiber yarn. The instant invention uses microfiber yarn independently and not in knitted or woven textiles.

The rejection of claims 1-3, 6-9, and 33 under 35 USC 103(a) as being unpatentable over Quearry et al., USPN 4,752,985 in view of Patrick, USPN 6,796,115 is respectfully traversed and reconsideration thereof is respectfully requested.

Claim 1, as amended and recited above, overcomes the 35 USC 103(a) rejection over Quearry et al. in view of Patrick because it has been amended to include:
a mop head coupling element;

Docket No.: LEDGE-002
Inventor: David S. Goldberg

at least two cords, each of said at least two cords comprising a plurality filaments twisted together into a bundle, each of a said plurality of filaments are of a denier from about 0.02 to about 0.99;

each of said plurality of filaments is a filament formed by extruding a precursor material to form a precursor filament and treating said precursor filament to split to comprise a core member, a plurality of projections emanating from said core member, and a wedge-shaped insert disposed between every other projection; and wherein each of said at least two cords includes at least one end and further wherein each of said at least two cords are bundled together at their ends and are secured to said mop head coupling element.

Quearry et al. alone or in view of Patrick does not disclose a mop head having cords comprising a plurality of filaments twisted together into a bundle forming the cord, each of a said plurality of filaments is of a denier from about 0.02 to about 0.99; each of said plurality of filaments is a filament formed by spin-extruding a precursor material to form a precursor filament and treating said precursor filament to split to comprise a core member, a plurality of projections emanating from said core member, and a wedge-shaped insert disposed between every other projection.

Claim 2, 3, 6-9, and 33 are canceled.

The rejection of claims 1-3, 6-11, 14-17 and 31-40 under 35 USC 103(a) as being unpatentable over Quearry et al. in view of Dugan, USPN 6,465,095 is respectfully traversed and reconsideration thereof is respectfully requested.

Claim 1, as amended, overcomes the 35 USC 103(a) rejection over Quearry et al. in view of Dugan because it has been amended to include, which is not made obvious by Quarry et al in view of Dugan:

a mop head coupling element;

Docket No.: LEDGE-002
Inventor: David S. Goldberg

at least two cords, each of said at least two cords comprising a plurality filaments twisted together into a bundle, each of a said plurality of filaments are of a denier from about 0.02 to about 0.99;

each of said plurality of filaments is a filament formed by extruding a precursor material to form a precursor filament and treating said precursor filament to split to comprise a core member, a plurality of projections emanating from said core member, and a wedge-shaped insert disposed between every other projection; and wherein each of said at least two cords includes at least one end and further wherein each of said at least two cords are bundled together at their ends and are secured to said mop head coupling element.

Claims 2-3, 6-11, 14-17, and 31-40 are canceled.

MPEP 2141 states: "When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined".

Further, as stated in *Jones v. Hardy*, 220 U.S.P.Q. 1021, 1024 (Fed. Cir. 1984), the test under 35 U.S.C. 103 is not whether an improvement or a use set forth in a patent [here patent application] would have been obvious or nonobvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious.

Docket No.: LEDGE-002
Inventor: David S. Goldberg

Heretofore, split microfiber filaments, such as those disclosed in Dugan have been used in the manufacture of textile sheet products by forming the filaments into yarns suitable for the manufacture of textile sheet material through knitting or weaving the suitable yarns into webs and fabrics. Additionally, nonwoven webs and fabrics can be made using the filaments in dry-laid and direct laid methods, which are known in the art.

The mop head of Bolten et al. (USPN 6,131,233) recognizes the superior cleaning ability of microfiber and in doing so provides a tubular member constructed from a textile sheet material of woven microfiber filaments. However, Bolten et al. fails to disclose the use of cords constructed of microfiber filaments which have been twisted or intertwined together into a bundle to form the cord.

The act of twisting or intertwining split microfiber filaments into a cord suitable for use as a mop cord is not disclosed in the prior art. As mentioned previously, microfiber filaments have only been formed into yarns which are suitable for the manufacture of webs and fabrics by weaving or knitting methods. At the time of Bolten et al., string mops comprising cords of yarn were known as well as yarns made of microfiber filaments which were suitable for weaving and knitting textile sheet materials. Bolten et al. did not recognize the ability to form mop cords of microfiber filaments by twisting the filaments together into a yarn suitable for use as the mop cord.

Further, Dugan (USPN 6,465,095) fails to recognize the ability to form yarns from the microfibers disclosed therein which are suitable for use as mop cords. Dugan, only discloses the yarns made by the method and fibers for use in the manufacture of webs and sheets by knitting, weaving or other nonwoven methods, such as dry-laid or direct laid. Dugan does not disclose mop cords comprising microfiber filaments for use in string mops.

Docket No.: LEDGE-002
Inventor: David S. Goldberg

The applicants of the instant mop head recognized a void in the prior art that included a long felt need of a superior mop head of the string-type which includes string cords formed by suitable yarn comprising twisted microfiber filaments. The void and long felt need is apparent from the mop head of Bolton et al. which attempted, but apparently failed to fill the void, by providing a mop having tubular members that are constructed from a textile sheet material of woven microfiber filaments.

Claims 41-47 as recited above are each patentable under 35 USC 102 and 35 USC 103 because they each add additional features to independent claim 1 as amended and recited above, and are thus submitted to be a-fortiori, patentable.

Claim 48 as recited above is patentable under 35 USC 102 and 35 USC 103 over Bolton et al. (USPN 6,131,233), Quearry et al. (USPN 4,752,985), Patrick (USPN 6,796,115), and Dugan (USPN 6,465,095) taken singularly or in combination, because it includes:

- a mop head coupling element;

- from about 2 to about 500 cords, each of said cords comprising a plurality of filaments twisted together into a bundle from said cord, each of a said plurality filaments are of a denier from about 0.02 to about 0.99;

- each of said plurality of filaments is a filament formed by spin-extruding a precursor material comprising a combination from about 70 percent to about 90 percent polyester and about 10 percent to about 30 percent nylon to form a precursor filament, acid treating said precursor filament to split said precursor filament to comprise a core member, a plurality of projections emanating from said core member, and a wedge-shaped insert disposed between every other projection; and

- wherein each of said cords includes an end that is secured to said mop head coupling element.

Docket No.: LEDGE-002
Inventor: David S. Goldberg

Claims 49-50 as recited above are each patentable under 35 USC 102 and 35 USC 103 because they each add additional features to independent claim 47 as recited above, and are thus submitted to be a-fortiori, patentable.

Claim 51 as recited above is patentable under 35 USC 102 and 35 USC 103 over Bolton et al. (USPN 6,131,233), Quearry et al. (USPN 4,752,985), Patrick (USPN 6,796,115), and Dugan (USPN 6,465,095) taken singularly or in combination, because it includes:

a surface;

at least two cords, each of said at least two cords comprising a plurality of filaments twisted together into a bundle forming said cord, each of a said plurality filaments are of a denier from about 0.02 to about 0.99;

each of said plurality of filaments is a filament formed by spin-extruding a precursor material comprising a combination from about 70 percent to about 90 percent polyester and about 10 percent to about 30 percent nylon to form a precursor filament, acid treating said precursor filament to split said precursor filament to comprise a core member, a plurality of projections emanating from said core member, and a wedge-shaped insert disposed between every other projection; and

wherein each of said at least two cords includes an end that is secured to said surface.

Claims 52-54 as recited above are each patentable under 35 USC 102 and 35 USC 103 because they each add additional features to independent claim 51 as recited above, and are thus submitted to be a-fortiori, patentable.

The applicants submit herewith an IDS under 37 CFR 1.97 citing a correspondence between Leading Edge Products and Quickie Manufacturing Company. The correspondence indicates pricing information on various items including a mop string. The mop string subject of this correspondence did not encompass the invention of

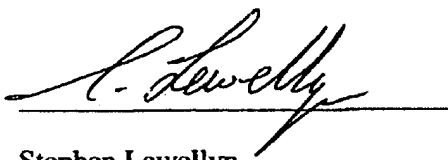
Docket No.: LEDGE-002
Inventor: David S. Goldberg

the claims as recited above. Therefore, a copy of this correspondence is only being submitted to satisfy 37 CFR 1.56 and it is not believed the correspondence establishes a bar under 35 USC 102(b) using the on sale bar test as set forth by the U.S. Supreme court in *Pfaff v. Wells Electronics, Inc.*, 124 F.3d 1429 (Fed. Cir. 1997).

In view of the above, it is respectfully submitted that:

Claims 1-54, recite distinctions that are of patentable merit under 35 USC 103(a) for the independent claims and thus for each dependent claim as well. Claims 1-54 are in condition for allowance. Reconsideration and withdrawal of the rejections are requested. Allowance of claims 1-54 at an early date is solicited.

Respectfully submitted:



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